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Assessing the Potential for Openness: A Framework for Examining Course-level OER Implementation in Higher Education

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Abstract: The implementation of open educational resources (OER) at the course level in higher education poses numerous challenges to education practitioners—ranging from discoverability challenges to the lack of knowledge on how to best localize and utilize OER as courseware. Drawing on case studies of OER initiatives globally, the article discusses field-tested solutions to addressing those challenges at the faculty level, the programmatic level, and institutional level. The article concludes with an ontological framework that highlights the importance of weighing the efficiencies afforded by a higher level of institutional control in OER implementation efforts, with the need for individual freedom on behalf of faculty to creatively use and adapt OER.

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Evaluando el potencial de lo "abierto": una estructura para examinar la implementación de los Recursos Educacionales Abiertos al nivel de curso en educación post-secundaria
Resumen: La implementación de recursos educativos abiertos (REA) al nivel de curso en educación post-secundaria genera dificultades numerosas para los profesionales de la educación. Basándose en una revisión de la literatura vinculada a la implementación de los REA en programas de educación superior a nivel mundial, los autores identifican los principales desafíos que enfrentan los profesionales de educación, así como las estrategias para resolverlos. Por examinar las estrategias de implementación derivadas de la literatura previa, los autores identifican tipos variados de apoyo, los cuales se presentan como un continuum ontológico para asistir a los desarrolladores de los REA y quienes que toman decisiones institucionales, en cuanto a determinar métodos efectivos y políticas para cultivar prácticas educativas abiertas. El artículo concluye con una discusión de las implicaciones del continuum con respeto a los niveles de control y riesgo conllevado en utilizar el diverso rango de estrategias examinadas.
Palabras clave: REA; Recursos Educativos Abiertos; estudios de caso; reutilización; colaboración; educación post-secundaria; políticas públicas; materiales de instrucción y practicas

Avaliando o potencial do "aberto": um enquadramento para examinar a implementação dos REA ao nível do curso na educação superior
Resumo: A implementação dos recursos educativos abertos ao nível do curso na educação superior apresenta desafios numerosos para os professionais de educação. Baseado numa revisão da literatura ligada à implementação dos REA em programas de educação superior á nível mundial, os autores identificam os principais desafios na implementação dos REA que enfrentam os professionais da educação assim como estratégias para resolvê-los. Ao examinar as estratégias de implementação aprendidas a partir da literatura, os autores identificam diferentes tipos de apoio que eles apresentam como um contínuo ontológica para ajudar os desenvolvedores de REA e os tomadores de decisões institucionais em determinar métodos e políticas eficazes para cultivar práticas educativas abertas. O artigo termina com uma discussão das implicações desse contínuo com respeito aos níveis de controle e risco implicados em utilizando o rango diverso das estratégias examinadas.
Palavras chave: REA; Recursos Educacionais Abertos; estudos de caso; reusabilidade; colaboração; educação superior; política publica; materiais de ensino y praticas

Introduction

Over the past decade the "open" approach to education has been embraced by a growing number of academics and practitioners involved in the provision of higher education. What began a little over a decade ago with the aggregation of open educational resources (OER) in online repositories has morphed into a movement to promote not only new teaching materials and resources, but also open teaching and learning practices extending to all aspects of higher education.

The majority of the literature addressing the OER movement focuses upon this changing landscape, and the potential benefits of OER use. While this literature has been significant in driving forward the open agenda, there has been relatively little published about the practicalities of implementing openly licensed materials in higher education courses.

This article explores effective strategies and policies for supporting the adoption and implementation of OER. The article is the result of a meta-analysis of existing case studies within the literature, focusing on OER implementation initiatives in higher education courses, the difficulties encountered in implementing OER, and the strategies applied in addressing those challenges. In total, 20 case studies were identified—spanning the global higher education sector, from India to Sub-Saharan Africa, from the South Pacific to the United States. Extant literature reviews were also identified, including Armellini and Nie's (2013) review of studies of OER applications by UK practitioners; Mawoyo and Butcher's (2012) investigation of processes of involved in producing and sharing OER in Africa, the USA, and the UK; and White and Manton's (2011) study of faculty use or promotion of OER at UK universities. Finally, the authors' own experiences integrating OER into a tertiary preparation program course at the University of Southern Queensland (USQ) served as input into the examination of this literature.

The article first identifies the challenges involved in OER implementation in higher education courses, as cited within the literature, as well as strategies for responding to those challenges. Next, the article presents a framework for assessing the strategies, in order to differentiate the varying types and degrees of supports and requirements involved in OER implementation. The discussion then presents *a continuum of openness*, which pays heed to the degrees of control, efficiency, and risk entailed in the range of strategies. The article concludes with a discussion of the implications of that continuum for OER developers and institutional decision makers seeking to determine the best methods and policies for supporting the adoption of open practices in higher education.

Strategic Responses to Challenges Involved in Course Level OER Implementation

Over the past decade, numerous studies have emerged within the literature addressing the challenges involved in OER implementation in higher education (e.g., Falconer, McGill, Littlejohn, & Boursinou, 2013; Hatakka, 2009; Sinclair, Joy, Yau, & Hagan, 2013). In examining this literature, five key categories of challenge emerge: challenges related to the localization and contextualization of OER, to faculty's ability to identify suitable, high quality OER, and to the challenges related to use permissions, discoverability, and practitioner self efficacy in using OER. The following sections elaborate these five categories of challenges in greater detail and present strategic responses to those challenges.

Contextualization Challenges

Much of the literature addressing OER implementation in higher education highlights challenges associated with faculty's ability to localize and contextualize OER to meet, for example, their student learning needs, their local teaching and pedagogical requirements, or the cultural or language-related needs present in their classrooms (Barrett *et al.*, 2009; Hatakka, 2009; Jimes, 2008; Maktin, 2009; Omollo, Rahman, & Yebuah, 2012; Ossianilsson & Creelman, 2012).

The literature points to several strategic responses that OER initiatives have employed to address contextualization and localization challenges. Athabasca University, for example, established mechanisms to help faculty match appropriate resources to the specific classroom contexts in which they were needed (Ives & Pringle, 2013). Further, toward addressing localization challenges, the Teacher Education in Sub-Saharan Africa (TESSA) project, created modular production templates for faculty to use in designing course unit OER across a wide range of contexts (Wolfendon, 2012). These templates included two distinct knowledge areas: generic global knowledge and locally contextualized knowledge (Wolfenden, 2012). While the templates were deemed advantageous in

providing structure and transferability, and also in reducing the likelihood of content replication, they were also seen as restrictive of perceived freedom to make significant changes to materials (Wolfendon, 2012).

Disaggregation of OER—wherein content providers parse resources into smaller content pieces—is another strategy identified in the literature for meeting localization needs. Of the 20 case studies reviewed for this article, strategic disaggregation by OER content providers was discussed in eight (Friesen & Murray, 2013; Gourley & Lane, 2009; Harishankar, 2012; Ives & Pringle, 2013; Lesko, 2013; Levey, 2012; Sapire, Reed, & Welch, 2012; Schmidt-Jones, 2012). Some of institutions employing this strategy adopted it because they discovered that this was the predominant way in which their existing OER were being used (Harishankar, 2012; Levey, 2012). While the literature reveals that OER that is available in a modular or disaggregated structure are more readily useful across contexts (Hatakka, 2009; Masterman *et al.*, 2011; Ossiannilsson & Creelman, 2012; Sinclair *et al.*, 2013), disaggregated resources may be too discrete, and thus lack the contextual information that is needed to make them comprehensible and usable on their own (Bundy, 2004; Friesen 2004; Sloep, 2004; Wiley, 2013).

Challenges Related to the Identification of Suitable OER

An additional area of challenge that surfaced from the literature review centered on concerns regarding the general quality of the resources, the suitability of resources in adequately meeting learning objectives for courses, and the technical appropriateness or effectiveness of resources.

In addressing challenges related to the identification of high quality OER, several initiatives have employed templates to prescribe quality standards for structural, pedagogical, and technical aspects of OER production (Kanchanaraksa *et al.*, 2009; Wolfenden, 2012). Formal review processes, involving faculty and peers, have also played an important role in addressing quality concerns (Kanchanaraksa *et al.*, 2009; Wolfenden, 2012). Likewise, informal peer review processes, including crowdsourced ratings and reviews, have been identified as important strategies for quality assurance (Ossiannilsson & Creelman, 2012). Examples include Open University's Labspace, which allows OER users to review and repurpose materials before they are further shared online (Gourley & Lane, 2009; Lane, 2012), and Athabasca University's online virtual social learning environment, "The Landing," which invites students to review and contribute to course content, toward improved OER quality (Ives & Pringle, 2013).

Other mechanisms for addressing suitability and quality concerns include Open University's development of a cooperative partnership with the British Broadcasting Corporation to create high quality video and online resources (Lane, 2012; Lane & Law, 2011). Furthermore, to enable easy access to high-use OER items within an established range of quality, Johns Hopkins Bloomberg School of Public Health implemented an internally accessible OER repository (Kanchanaraksa *et al.*, 2009).

Finally, in terms of the technical suitability of resources, and specifically meeting challenges such as Internet capacity constraints that limit access to rich, multimedia resources, the University of the South Pacific (USP) developed a resource quality testing strategy that resulted in the design of contingency plans, such as preloading learning materials onto tablets and onto a local intranet, to mitigate connectivity issues at its institution (Koroivulaono, 2014).

Discoverability Challenges

The ability to discover and identify the resources most appropriate to a user's particular needs remains a major challenge in the OER space. Dichev and Dicheva (2012) investigated several major OER search engines and repositories and found them lacking in one or more of the essential

functionalities required to effectively discover, identify, and retrieve resources. They specifically note that the metadata records associated with the resources referred mostly to the content, with very little reference to its use (Dichev & Dicheva, 2012). Atenas and Havemann (2013) conducted a similar analysis, finding that existing peer review and user evaluation tools were limited in supporting OER discoverability.

Strategies for addressing discoverability challenges are outlined in the OER implementation literature. The provision of specialists within the realm of library and information technology support plays an important role in this area (Levey, 2012; Omollo, Rahman & Yebuah, 2012). For example, Levey (2012) suggests using libraries to coordinate OER resource searching to save the time of overworked academics. Levey (2012) cites research conduted at the University of Illinois, which found that a majority of OER users surveyed through the library website had discovered open materials via a keyword search from a general web search (Levey, 2012). Moreover, the research indicated that users searching in this way sought specific materials, not courses, which highlights the importance of appropriate metadata schemas (Levey, 2012).

Much work is underway to develop improved metadata schemas. Sloep (2004) assessed various barriers to the use of OER across courses, and found that the limitations of metadata classification do not enable the kinds of discoverability needed by educators involved in creating courses. Sloep (2004) suggests that what is needed to improve discoverability is a meta-language that captures pedagogical approaches, without becoming too specific. Sloep (2004) proposes categories based on "didactic scenarios," such as the role for which the OER is appropriate (e.g., student or teacher), the environment to which the OER is suited (e.g., in-class, online, in a peer group), the services required (e.g., a chat facility or a collaborative learning environment), and properties (e.g., run-time and scale). As Sloep (2004) suggests, such didactic scenarios would render OER more discoverable.

Challenges Related to Use Permissions

According to Bossu, Brown, and Bull (2012), the absence of explicit institutional policies to clarify use permissions has limited the adoption and use of OER. Furthermore, 8 of the 20 case studies reviewed for this article identified copyright and intellectual property issues as a key area of challenge for OER uptake and use (Barrett *et al.*, 2009; Kanchanaraksa, Gooding, Klaas, & Yager, 2009; Keats, 2009; Lane, 2012; Ives & Pringle, 2013; Lesko, 2013; Myers, 2012; Schuwer & Mulder, 2009).

OER users may be unaware of the use permissions associated with the materials they are using. In a survey of faculty at South African Higher Education Institutions (SAHEI), Lesko (2013) found that only 52% of respondents were aware of the use permissions associated with the open courseware they were using. Other scholars point to the confusion that arises for OER users when single resources have multiple permissions assigned to them—for example, when single resources with several embedded elements have a complex rights profile (Barrett *et al.*, 2009; Kanchanaraksa *et al.*, 2009).

A study at Johns Hopkins Bloomberg School of Public Health found that copyright management has been the most time-consuming aspect of the OER publishing process because it entails finding a unique solution for each object (Kanchanaraksa *et al.*, 2009). Moreover, at the institutional level, that copyright management often results in the need to remove "good educational content" (Kanchanaraksa *et al.*, 2009, p. 42), which is exacerbated by the lack of protocols and understanding around how to seek permissions from rights holders who may be willing to open up their materials. In terms of individual faculty members, Lesko (2013) notes that those who are producing OER are often ill informed about licensing options for sharing their work.

A variety of strategic responses to copyright challenges were mentioned in the literature. For example, Athabasca University has moved away from using third party resources that cannot be accessed via a web link, and instead provides simple URL links or RSS feeds where possible (Ives & Pringle, 2013). In contrast, Open Universitiet Netherlands has moved towards utilizing OER predominantly created by its faculty and staff to avoid the complexities of use permissions (Schuwer & Mulder, 2009). At Open University UK, this OER production strategy involves teams of experts, including intellectual property experts, working collaboratively alongside faculty as content developers (Lane, 2012).

Knowledge-Related Challenges

This category of challenges is centered on those related to lack of practitioner knowledge and self-efficacy in using OER. The Joint Research Centre of the European Commission lists insufficient digital literacy and lack of awareness regarding possibilities for OER use as barriers to OER uptake, but notes that these particular barriers are decreasing in importance (Falconer *et al.*, 2013). However others, for example Panke (2011) and Armellini and Nie (2013), suggest that challenges stemming from lack of user knowledge remain significant and require further attention within the realm of OER.

Collaboration among educators can serve as a strategy for addressing knowledge-related challenges, and is often supported through professional development workshops on collaborative OER sharing and use for subject specialists (Lesperance, 2012; Sapire, Reed, & Welch, 2012). For example, intensive workshops were implemented at Virtual University for Small States of the Commonwealth (VUSSC), where faculty leaders from participating programs received comprehensive training on OER and were tasked with sharing their knowledge with colleagues upon their return to their home countries (Lesperance, 2012). Likewise, the South African Institute of Distance Education (SAIDE) initiative promoted collaboration among its mathematics teachers to develop knowledge around OER, as well as engagement with the project goals (Sapire, Reed, & Welch, 2012). In this way, collaborative networks, often disciplinary in focus, have formed to share relevant OER information (Brent, Gibbs, & Gruszczynska, 2012).

Other examples of professional development supports include United Nations University's "starter pack" to support faculty and staff in creating OER-rich online courses, and its international steering group spanning several research institutes to foster collaboration around OER integration into existing research and training activities (Barrett *et al.*, 2009). Additionally, Johns Hopkins Bloomberg School of Public Health offers a staff-accessible, centrally managed repository to facilitate OER adaptation for students with disabilities (Kanchanaraksa *et al.*, 2009).

In addition to supports related to professional development, institutions also provide tools to assist staff in achieving self-efficacy in implementing OER (Barrett *et al.*, 2009; Kanchanaraksa *et al.*, 2009; Mawoyo & Butcher, 2012). These tools, often developed by institutional OER specialists, include compilations of exemplary OER and flowcharts for determining and assessing use permissions on resources (Barrett *et al.*, 2009; Kanchanaraksa *et al.*, 2009; Mawoyo & Butcher, 2012).

Finally, to promote institution-wide knowledge of OER, Athabasca University hosted the 2011 UNESCO/Commonwealth of Learning Chair in OER. This assisted in promoting knowledge of OER throughout the institution through training, support, and research in open educational practices, as well as in building relationships for such practices institutionally, nationally, and internationally (Ives & Pringle, 2013).

Assessing the Strategies

The foregoing discussion points to a diverse set of strategies and supports to address OER implementation challenges. Some of the strategies identified start with the individual agent or actor, while others involve leveraging collaborative relationships to support successful OER implementation. In further examining the strategies through an ontological lens, the following categories emerged—ranging from individual-level strategies, to networked or user-shaped strategies, as illustrated in Figure 1.

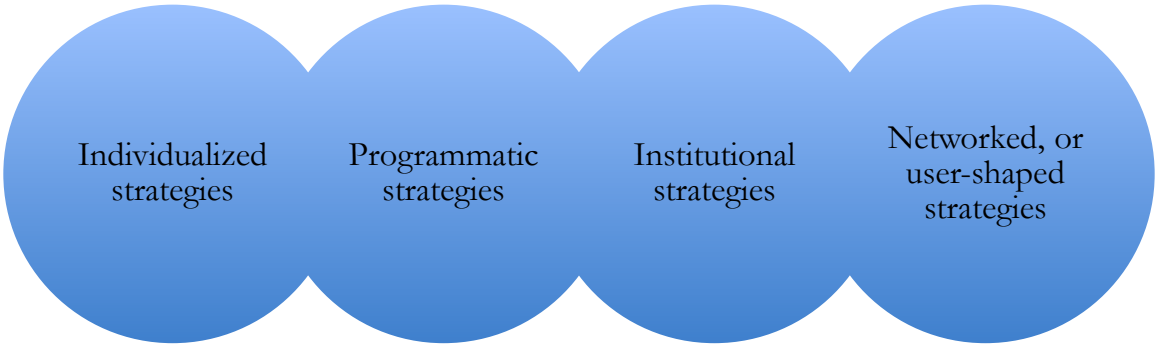

Figure 1. Framework for assessing OER implementation strategies

As illustrated, the four categories of strategies—individual, programmatic, institutional, and networked or user-shaped—demarcate increasing levels of collaborative support involved in OER implementation. In the sections that follow, strategies within each of the above categories are discussed, beginning with individual and proceeding to networked or user-shaped strategies.

Individual Strategies

Individual strategies concentrate the responsibility for solving the challenges of implementation on the individual, or on a small independent team. Within this category of strategies, for example, individual faculty members may go online to search for and explore suitable open educational resources, read help guides and tutorials on OER use, examine reviews of OER to asses quality, or nominate themselves for training to improve their OER-related skills.

As described by Levey (2012), these strategies represent an independent learning journey to improve OER-related knowledge and skills. However, individual strategies may in some cases fail to fully engage the potential of OER. Especially in terms of addressing challenges associated with copyright restrictions, individual faculty members may, for example, discount or overlook useful resources that have ambiguous use permissions (Barrett *et al.*, 2009; Mawoyo & Butcher, 2012), or may develop workarounds to bypass use restrictions--such as including links to copyrighted resources within their own resources. As noted above, the process of updating those links, when

they potentially become obsolete, is time consuming and can interrupt the continuity of resource delivery (Koroivulaono, 2014; Myers, 2012).

While individual strategies may be limited in their ability to take advantage of the full potential of OER, enterprising individuals can and do successfully implement OER at the course level. Moreover, as demonstrated by several of the examples discussed in this article, institutions can fluidly accommodate and even cultivate the creative interventions of individuals.

Programmatic Strategies

Programmatic strategies harness resources and personnel already available at institutions to foster helpful working relationships toward alleviating the workloads of academic instructors. Within this category of strategies, professional development initiatives, such as the above-mentioned VUSSC OER training "boot camps," facilitate collaborative supports such as knowledge sharing (Lesperance, 2012).

The provision of appropriate experts and tools is another programmatic strategy that has been applied across several institutions (Barrett *et al.*, 2009; Kanchanaraksa *et al.*, 2009; Levey, 2012; Mawoyo & Butcher, 2012; Omollo, Rahman & Yebuah, 2012). For instance, the provision of an OER repository tailored to the institutional context, as cited above in regard to Johns Hopkins Bloomberg School of Public Health (Kanchanaraksa *et al.*, 2009), can help academics use OER without having to become information technology experts.

The collaborative supports provided by programmatic strategies for OER implementation can relieve some of the difficulties associated with individual strategies, as programmatic strategies may begin to establish a collaborative institutional culture conducive to open educational practices. However, while programmatic strategies assist in meeting the challenges of OER implementation, they reflect a model that tackles each OER implementation challenge separately, rather than establishing a coherent, systemic approach to addressing them all.

Institutional Strategies

On a broader scale, institutional strategies systematically distribute the responsibility for solving the challenges of OER implementation, allowing faculty to rely on collaborative support systems fostered by institutional policy. Within this category of strategies, programmatic strategies, such as OER professional development, are commonly integrated into an overarching, institution-wide OER support strategy. One example of this strategy is the aforementioned creation of an international steering group at the United Nations University, which sought to foster collaboration as a mechanism for integrating OER more seamlessly across its research and training activities (Barrett *et al.*, 2009).

As components of integrated, systemic plans, institutional strategies also influence multiple facets of student, faculty and staff experience. This multifaceted quality is demonstrated by Athabasca University's networks of communication for matching OER to appropriate contexts, including the institution's online social learning environment that invites students to contribute collaboratively toward improving resource quality, and extending to the university's 2011 UNESCO/Commonwealth of Learning Chair in OER (Ives & Pringle, 2013).

Institutional strategies have the potential to incentivize collaboration around OER use and implementation beyond the level of the individual user. However, these strategies may conceivably limit the creative potential of individuals, as noted in the TESSA case study where the institution-wide implementation of OER templates was found to sometimes restrict the users' perceived freedom to make significant changes to the materials (Wolfendon, 2012). Moreover, institution-wide

strategies generally require large-scale financial investment, necessitating continual research to monitor their effectiveness (Lane & McAndrew, 2010).

Networked or User-shaped Strategies

With or without institutional support, groups of academics, content developers and others interested in open educational resources and associated use practices have coalesced to provide mutual assistance in meeting the challenges of OER implementation, especially with regard to developing practitioner knowledge and self-efficacy in OER use.

Collaborative, user-shaped networks often arise in conjunction with professional development training or disciplinary interest groups, to facilitate OER sharing and use (Brent, Gibbs, & Gruszczynska, 2012; Lesperance, 2012; Sapire, Reed, & Welch, 2012). They involve some degree of relinquished institutional, managerial or creator control, and reassignment of that power to a network of users. The disaggregation of OER by groups of users falls within this category of strategies, as a mechanism to addressing user needs for localized, high quality content (Friesen & Murray, 2013; Harishankar, 2012; Ives & Pringle, 2013; Lesko, 2013; Levey, 2012; Sapire, Reed, & Welch, 2012; Schmidt-Jones, 2012). Through disaggregation, innovation and creativity may be sparked, as the loss of meaning resulting from the fragmentation of formerly coherent OER may correspond to an increase in the potential for new meaning to be created from the fragments.

Finally, crowd-sourced quality control is a less common user-shaped approach to specifically addressing OER suitability and quality concerns. Although its potential was widely anticipated (Ossianilsson & Creelman, 2012), it has not surfaced as a predominant solution to OER implementation challenges, potentially indicating that it is currently considered a step too far towards a reliance on bottom up, user-oriented collaborative OER practices.

Networked and user-shaped strategies, while sometimes harnessed by programmatic or institutional strategies, exceed the scale of the helpful working relationships cultivated by those strategies. Networked and user-shaped strategies involve individual users as participants in improvised collaborative self-organizing networks. Here, one finds complex systemic interactions that can foster the emergence of new phenomena through the interactions of many elements, none of which takes a leading role (Johnson, 2001). These approaches can go further to harness the potential for innovation inherent in the use of open educational resources. On the other hand, as the ability to determine outcomes is lost, there is a risk of inefficiency, and the ability of these strategies to solve the challenges of context, copyright, suitability, discoverability, and knowledge becomes less predictable.

The categories of strategies presented here—individual, programmatic, institutional, and user-shaped—represent salient responses that impact the practical processes of OER implementation at the course level. On the whole, the types and degrees of collaborative support involved in these strategies demonstrate widespread adaptability and scope for innovation toward effective solutions to the most common OER implementation challenges.

A Continuum of Openness

As the above discussion demonstrates, OER implementation support takes many forms, including *ad hoc* teamwork, the cultivation of helpful working relationships, the establishment of overarching policies, and the formation of self-organizing networks. The diverse range of strategies for addressing challenges involved in implementing OER into higher education courses may be best understood as extending along a continuum of openness in education. At one end of this continuum, strong institutional influence supports effective but restrictive responses to OER

integration. At the other end, high risk is accepted as part of moving towards user-directed open practices.

An example of a high influence, low risk strategy is that employed by the TESSA project in coordinating the production of OER that are suitable and adaptable for diverse contexts (Wolfenden, 2012). The top-down standards that included the use of templates for all OER and the requirement for local content were reported as successful in achieving these goals. On the other hand, this degree of control was found in some cases to limit the potential for innovation or imagination in the design of the resources and courses (Wolfenden, 2012).

At the other end of the continuum are strategies such as crowd-sourced quality control, or user-generated repository search parameters for OER suitability. Here, the outcomes will be fluid, changing and unpredictable. At this end of the openness spectrum, there is scope for the unexpected to emerge, but also a risk of time and resource wastage and inefficiency. A selection of strategies is represented on this continuum in Figure 2.

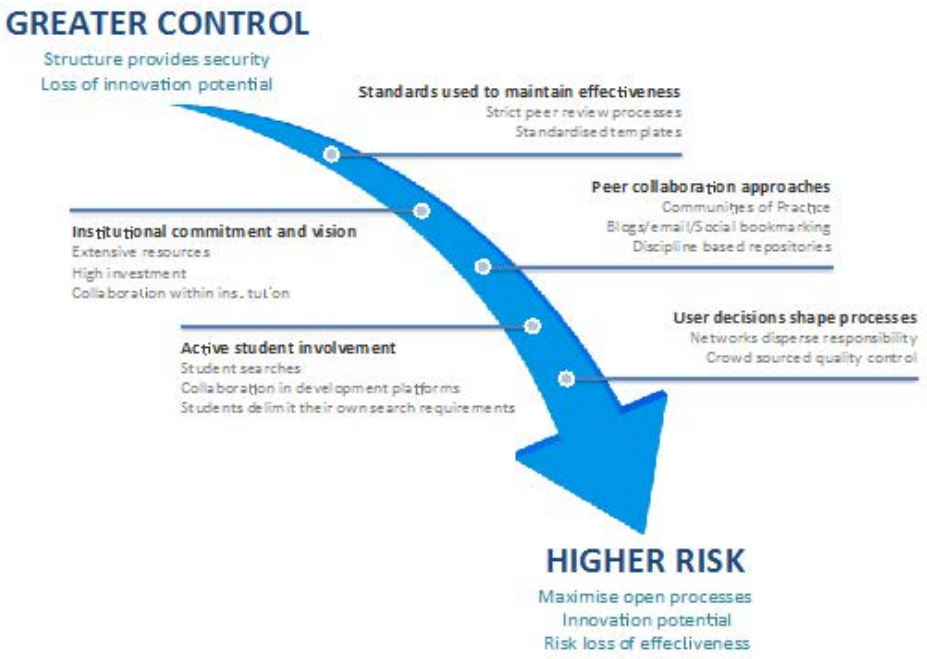

Figure 2. A continuum of openness

While strategies at either end of this continuum are likely to be appropriate choices for contexts where either high short-term efficiency is required, or high risk can be tolerated to support the potential emergence of innovation, strategies arrayed through the middle of the continuum are likely to be more adaptable within a wider range of contexts. Most applications of a strategy designed to incorporate openness into learning materials will fall within the central regions of this continuum. For example, most practitioners are likely to draw upon the expertise of their peers, actively engage with students, and utilize the coordinated facilities of their institutions. However,

practitioners may be less likely to rely solely upon either high risk or strictly controlled structures as these may act to limit the potential of their strategies. The use of a range of strategies enhances efficacy in identifying, redesigning and adopting suitable materials. As the implementation of OER in higher education occurs in a variety of contexts globally, it is appropriate that a diverse and wide range of strategies may be likely to produce the most effective results.

Conclusion

This article has revealed a wide range of strategies for addressing challenges associated with implementing OER into existing higher education courses--from approaches driven by individuals to those supported by self-organizing collaborative networks. The article has also offered a continuum of openness to facilitate understanding of some of the potential advantages and disadvantages of addressing OER implementation challenges through strategies situated across these varied ontological levels.

The continuum of openness may be helpful to institutional decision makers, education practitioners, and OER developers seeking to determine the best policies and methods for supporting the adoption of open practices. Pragmatic assessment of strategic capacities for realizing the potential of openness in educational practices may benefit from weighing the efficiencies afforded by a higher level of institutional, structural, or individual control, against a lower potential for innovation and adaptability, as identified at one end of the support continuum. Likewise, at the other end of the continuum, a higher potential for innovation and adaptability must be weighed against a risk of unpredictable efficiency. While strategies at either extreme of the continuum are likely to offer significant strengths within certain limited contexts, those strategies located in the middle of the continuum are likely to provide the balance—between efficiency, capacity for innovation, and adaptability.

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